



Mid Atlantic Region

Dufief

**A Conventional
Subdivision**

Before Development



Figure 1: In 1963, the site of the future Dufief development was almost entirely in agricultural land. The existing pond can be seen on the lower left boundary line, surrounded by a stand of forest.



Figure 2: By 1988 the development was entirely built out, and today's forest canopy was beginning to develop.

Overview

<i>Location:</i>	North Potomac, Montgomery County, Maryland Washington, DC metropolitan area
<i>Year:</i>	1971 (plan) 1972 (began construction)
<i>Developer:</i>	unknown
<i>Planner/Designer:</i>	unknown
<i>Development Size:</i>	402 acres (ha.)
<i>Number of Units:</i>	approximately 306
<i>Open Space:</i>	acres of total area

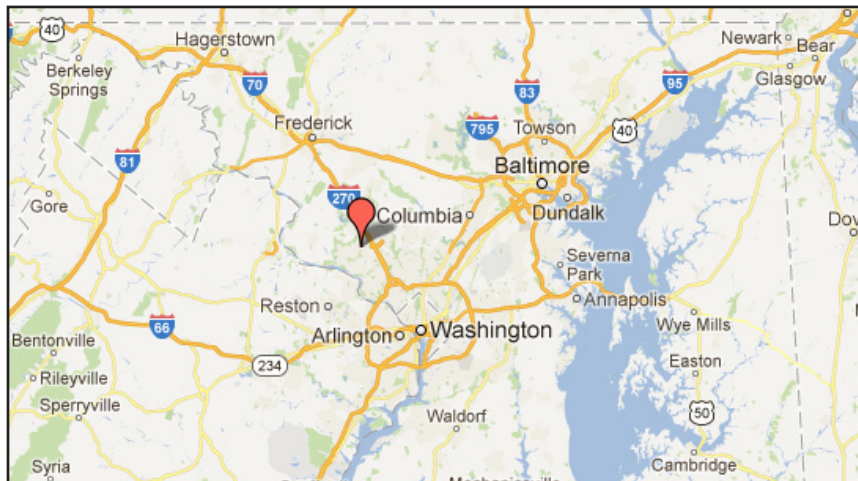



Figure 3: Dufief is located northwest of Washington, DC., on the outskirts of the City of Gaithersburg.

The Dufief development was approved and the covenants registered in 1972. The plan was before any of the current code requirements were put in place (1994, with an entire revision in 2012), so most of the current requirements for open space such as forest stand delineation, and stormwater management were not applicable at that time.

The development was built on largely unforested agricultural land, at a time when the region was largely undeveloped. Figure 1 shows the pre-development condition of the site, with two ponds in the two major drainage watersheds on the site. There two ponds persisted in the development and remain on the site today.

Two decades later, when Kentlands was planned and built (figure 2 in 1988), the region was already almost built out with similar



suburban developments. Dufief was planned and designed in the classic model of the period, maintaining open space between single-family home lot clusters fashioned around cul-de-sacs. The development was comprised of 306 single-family homes on 17 cul-de-sacs spread over 400 acres.

Also typical for the period, developers focused on obtaining an elementary school in their development as a way of enhancing its value to potential buyers. Almost 10 acres of land was dedicated for Dufief Elementary School and donated to the school district in November 1971. School construction began in September 1974 and the 59,013 square foot building was completed in August 1975 at a cost of \$2,155,463.72. The original building was designed to have 23 open classrooms arranged around two open-air atriums. During construction, the Board of Education voted to change the name of the school name from “Avalon,” to that of the surrounding community, “Dufief.”

Abutting the elementary school lies Dufief Park, owned and managed by the Maryland National Capital Parks and Planning Commission (M-NCPPC). The park and has two playgrounds and three tennis courts, as well as two fields suitable for football or soccer. The 15.4-acre park was acquired by M-NCPPC in 1976.

Although the area along Darnestown Road increased in tree canopy between 1988 and 2002, reforestation has been improved in that area of open space in the last five years. Additional stormwater management swales and ponds have also been installed in this area. These retrofits will significantly improve the runoff from the site.

References:

About Dufief, Dufief Elementary School, accessed 6-19-12, www.montgomeryschoolsmd.org/schools/dufiefes/about/

About Dufief, <http://www.dufief.org/about/>

Declaration of Covenants, Montgomery County Land Records, March 2, 1972, Liber 4197, Folio 514.

Montgomery County Code 1955

Montgomery County Code, 1972, updated 1978.



Figure 4: The development of Dufief (2008) outlined in red, showing similar developments in the surrounding area.

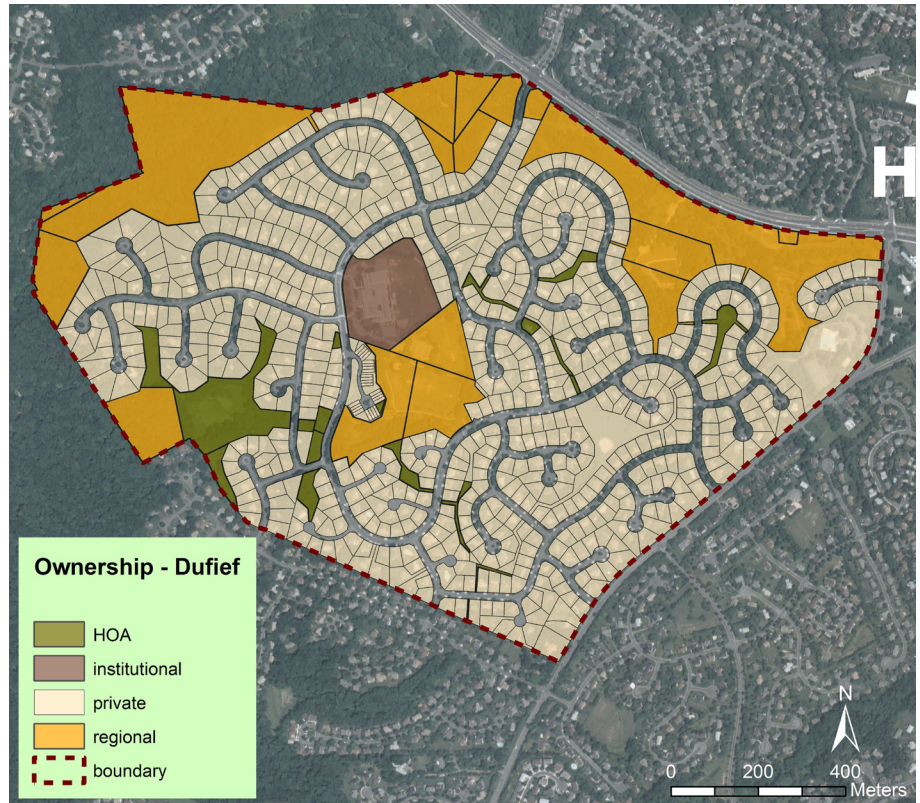


Figure 5: Ownership of the open space in Dufief, showing areas owned by regional entities, the school and the home owners association (HOA).

Table 1: Breakdown of the ownership of the open space by area and percent of total.

Ownership	Parcels #	acres	Area ha	%
HOA	30	16.55	6.70	4.1
Private	837	228.39	92.50	56.8
Regional	23	87.93	35.61	21.9
Institutional	1	9.94	4.03	2.5
Roads		59.17	23.96	14.7
Total area		401.98	162.80	100.0



Figure 6: Habitat characteristics of the development, include natural and ornamental landscapes.

Table 2: Breakdown of the vegetative cover of the common open space by area and percent of total.

	<i>Area</i>		<i>% open space</i>	<i>% of total</i>
	<i>acres</i>	<i>ha</i>		
natural no intervention	42.17	17.08	34.7	10.5
natural moderate intervention	40.04	16.22	33.0	10.0
ornamental minimal	38.69	15.67	31.9	9.6
ornamental intensive	0.51	0.21	0.4	0.1
Total area of open space	121.41	49.17	100.0	
Total area of development	401.98	162.80		30.2

Table 3: A summary of the native plant analysis for the site. The open space rated medium high in native plants and had a moderate rating for habitat potential.

	<i>Native Plants</i> %	<i>Plant Cover</i> %	<i>Notes</i>	<i>Rating</i> % of total possible points
<i>Transect 1</i>	78.57	87.5	Downstream exists manmade wetlands. Area may be deeded to the city, there are no walking trails. Private tennis court and West Leigh pool nearby. There are almost no saplings or shrubs, deer problem in region. Narrow strip of woodland, understory completely removed. 3 foot wide paved trail, managed area, looks like its mowed along path. Bugs and birds chirping, quieter than area of first transect. Some turf grass escapees noted.	63.33
<i>Transect 2</i>	58.82	89.47	Lots of noise from route 28. Can hear a few bugs. Heading west there is more forest. Lots of deer browse, no shrub understory, very little regeneration	30
<i>Transect 3</i>	81.25	69.57	Old boxelder woodland, boxelder and black walnut dominate, few struggling green ash present. Overall low variety (both in age and species), tree ages range 20 to 50 years, one 100 year old sycamore. Heavy deer browse,	63.33
<i>Transect 4</i>	91.67	63.16	Stream channel is lined with rip rap and drains into large detention pond. Stream channel appears to experience high fluctuations in flow. A narrow rim of weeds surrounds the pond and mowed strip of turf surrounds the weeds. There is a large turf area that over looks the pond, looks heavily used, picnic tables etc.. Houses surround the edge of the woods, not visible, but close to open space. Turtle and chipmunk noted at site. Woodland age range 20 to 40 years, one 150+ yo oak noted. Heavy deer browse, no understory.	70
<i>Transect 5</i>	100	50	Water is trickling through stream channel. Flow augmented by stormwater. Channel deeply cut. Natural woodland, homes nearby, does not appear to be used for recreation. Very quiet, few bugs. Squirrels noted. Buried pipeline running though woodland. Heavy deer browse, understory not well developed, the ONLY saplings noticed was ironwood.	60
<i>Transect 6</i>	91.67	100	Stormwater channel is fairly small. Appears to be used for recreation. Area left in a natural, unmanaged state. Underdeveloped understory. Lots of trash, beer cans.	70
<i>Transect 7</i>	n/a	n/a	Stormwater channel is fairly small. Appears to be used for recreation. Area left in a natural, unmanaged state. Underdeveloped understory. Lots of trash, beer cans.	n/a
<i>Transect 8</i>	n/a	n/a		n/a
Site Average	83.66	76.62		59.44

Stormwater Management



Figure 7: There are three stormwater ponds in the northern open space parcel along Darnestown Road, and a larger pond in the western portion of the site.

Table 4: Total imperiousness of the development is moderate at just over 20%.

	<i>acres</i>	<i>% Area</i>
Roads	29.13	7.25
Roofs	38.69	9.63
Driveways	13.83	3.44
Parking Lots	2.40	0.60
Total Area	84.05	20.9

Recreation



Figure 8: Recreational open space in Dufief development has an extensive trail network, and a considerable amount of passive open space largely centered over the northern and western periphery.

Table 5: Characteristics of the open space, showing almost 33% percent of the development with passive open space and over six kilometers of trails.

	<i>acre</i>	<i>ha</i>	<i>% of open space</i>	<i>% of total development</i>
passive	112.62	45.61	95	32.9
active	5.46	2.21	5	1.6
total open space	118.08	47.82	100	
total development	342.81	138.84		34.4
trail (meters)		6,199.65		

Visual quality was defined for the development using two measures: consistency of the street tree canopy, and distance to community open space. Only common spaces were rated in this analysis, not the visual quality of private parcels and their impact on the visual quality of the community.

The community open space is clustered in larger parcels in the community. Therefore the average distance to a greenspace is at a moderate level compared to the other communities studied. The average distance to open space from each residential parcel was 235.7 meters, or 773.41 feet.

Visual Quality

Table 6: Visual quality rating for Dufief.

<i>Consistency of street tree canopy</i>		
	low	
<i>Average distance to open space</i>		
Number of parcels	781	
Maximum distance to open space	1141.73 m	3,746.03 ft.
Average distance to open space	235.73 m	773.41 ft